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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,664	02/02/2001	Takatoshi Yamashita	03327.2252	7053
22852	7590	12/22/2003	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 1300 I STREET, NW WASHINGTON, DC 20005			EL SHAMMAA, MARY A	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773,664

Applicant(s)

YAMASHITA, TAKATOSHI

Examiner

Mary A. El-Shammaa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Bright et al. (5,554,852) in view of Maishev et al. (6,037,717).

Regarding claims 1 -6, Bright et al. discloses in Figure 2 a Bernus ion source and method of operating said ion source comprising a plasma production vessel (110) which serves as an anode, a filament (116) provided on one side of the plasma production vessel, and a reflector (120) provided opposite said filament on the other side of the plasma production vessel which is kept at a filament potential (Col. 4, Lines 14-48). Bright et al. does not disclose a magnet within said vessel satisfying the relationship $L < 3.37B^{-1}\sqrt{(V_A) \times 10^{-6}}$. Maishev et al. discloses an ion source with a permanent magnet (166) located within a plasma production vessel (Col. 8, Lines 3-5). Maishev et al. discloses a plasma production that serves as a cathode (340) with an anode (354) inside (Col. 10, Lines 20-38). However, it would have been obvious to provide an anode housing with a cathode inside, since it has been held that the mere reversal of the essential working parts of a device involves only routine skill in the art. In re Einstein, 8USPQ 167.

Maishev et al. further teaches of an ion source comprising a permanent magnet satisfying the relationship $L < 3.37B^{-1}\sqrt{(V_A) \times 10^{-6}}$ (Col. 6, Lines 40-43, 65-67 through Col. 7, Lines 1-9,

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Col. 13, Lines 16-18). According to the Applicant's specification, the expression $L < 3.37B^{-1}\sqrt{(V_A) \times 10^{-6}}$ can be written as $L < R$, where R is the Larmor radius (Page 6, Lines 7-9 of specification). Maishev et al. discloses in FIGS. 4a-4c an anode-cathode distance (d), between an anode (AN) and a cathode (IC, OC), wherein the Larmor radius (r_i) is significantly greater than the anode-cathode distance (Col. 7, Lines 1-23). This relationship would satisfy the limitation of $L < 3.37B^{-1}\sqrt{(V_A) \times 10^{-6}}$, wherein when combined with the apparatus of Bright et al., the Larmor radius is greater than the distance from the center of the filament to the wall. Furthermore, according to the Applicant's specification, when such a condition is satisfied, the magnetic field causes electrons produced by the plasma production vessel above an energy level to collide with the wall face (Page 6, Lines 7-16 of specification). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the permanent magnet of Maishev et al., satisfying the relation of the Larmor radius being significantly greater than the anode-cathode distance ($r_i \gg d$), because Maishev et al. teaches that the use of the magnet induces a magnetic field in the ion emitting slit, while having virtually no effect on the ion trajectory (Col. 2, Line 66 through Col. 3, Line 5, Col. 7, Lines 1-23).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. El-Shammaa whose telephone number is 703.308.0851. The examiner can normally be reached on M-F (8:30am-5:00pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 703.308.4116. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.872.9317.

MAE

December 9, 2003


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800